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14. (New) The method as set forth in claim 12 wherein the bringing step comprises lowering the material onto the upper surface of the heat source and the removing step comprises raising the material so that it is above and apart from the upper surface of the heat source.

REMARKS

The specification and claims 1, 2, 5, 6, and 9 have been amended, claims 4 and 8 have been canceled without prejudice, and new claims 10-14 have been added. No new matter has been added by these amendments.

In the December 2, 1996 Office Action the Examiner rejected the specification for failing to comply with the first paragraph of 35 U.S.C. § 112, rejected claims 1-9 under 35 U.S.C. § 112, second paragraph, for being indefinite, objected to claims 4 and 8 under 37 C.F.R. § 1.75(c) for failing to comply with the requirement for dependent claims, and rejected claims 1-9 under 35 U.S.C. § 103(a). The specification and claims 1, 2, 5, 6, and 9 have been amended, claims 4 and 8 have been canceled without prejudice, and claim 10-14 have been added. Accordingly, reconsideration of the rejections of claim 1-3, 5-7 and 9, in view of the aforesaid amendments and the following remarks is respectfully requested.

I. CLAIM FOR PRIORITY

On June 10, 1996, Applicants filed a supplemental claim for foreign priority, a request for a corrected filing receipt and a supplemental declaration. These documents were filed to perfect the applicants claim to priority pursuant to 35 U.S.C. § 119 on the basis of Japanese Utility Model Application No. 6-017044 dated December 27, 1994 and Japanese Patent Application No. 7-329791 dated November 24, 1995. While the Examiner has acknowledged the claim to foreign priority and the receipt of all certified copies of the priority documents, Applicants have received no reply to their

June 10, 1996 filing. Applicants respectfully request the Examiner to confirm the claim to priority to both foreign priority applications.

II. SPECIFICATION

The Examiner rejected the specification for failure to comply with 35 U.S.C. §112, ¶ 1 for failing to be written in "full, clear, concise, and exact terms." Applicants have amended the examples of unclear, inexact or verbose language identified by the Examiner, as well as an additional typographical error. Reconsideration of the rejection is respectfully requested.

III. 35 U.S.C. § 112, ¶2

The Examiner rejected claims 1-9 under 35 U.S.C. § 112, ¶2 as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as their invention.

Claims 1 and 9 have been amended in accordance with the suggestions provided by the Examiner. The preamble has been amended to eliminate redundant language and the remainder of the claims have been amended to eliminate any confusing or unclear language. Further, although not specifically identified by the Examiner as failing to comply with 35 U.S.C. § 112, ¶ 2, claims 2, 5 and 9 have also been amended to comply with 35 U.S.C. § 112, ¶ 2. Further, as requested by the Examiner, claims 4 and 8 have been canceled without prejudice because they merely identify the material to be used in the claimed process but did not further limit the claims. However, applicants assert that the remaining claims and new claims still cover a device built and operated according to the claims which is used to produce a solar cell. Thus, the cancellation of claims 4 and 8 do not create any estoppel. In view of the amendments and cancellations, reconsideration of the amendment is respectfully requested.

IV. REJECTED CLAIMS

A. Response to Paragraph 4

The Examiner rejected claims 1, 4 and 5 under 35 U.S.C. § 103(a) as being unpatentable over Garabedian. Applicants respectfully request reconsideration of this rejection.

The invention claimed in claim 1 is directed to a two chamber laminating apparatus. The invention includes a supporting means for supporting the materials. The invention also includes a separate and distinct movable heating stage. When the heating stage is in its downward position, the supporting means supports the materials above and apart from the heating stage. This novel and nonobvious invention provides several advantages. First, because the material to be laminated can be supported above the heating stage, the material to be laminated does not have to be brought into contact with the heating stage until the heating stage is at the proper temperature. Prior art systems without a separate heating stage and supporting means can not accomplish this function because of the need to create a vacuum prior to heating the material to be laminated. Thus, under prior art systems, the material must be placed on a heater, a vacuum created and then the heater heated to the proper temperature. Therefore, the claimed invention allows for a superior lamination. Second, because the heating stage can be lowered away from the material, the laminated material can be removed without cooling the heating stage. This allows for a reduction in costs because a cooled heating stage would have to be reheated prior to its reuse on a second material to be laminated.

The Garabedian patent fails to disclose these claimed features. The Examiner appears to be relying on Figures 1 and 2, which show the material to be laminated in a suspended position. However, in Garabedian Figures 1 and 2 there is no equivalent of the means for supporting according to the claimed invention. In addition, Garabedian's patent does not state that the heating stage can ascend and descend freely. Garabedian's Figures 1 and 2 show sheets 10 and 11 separated from each

other as well as separated and at a distance above sheet 7. It is inconceivable that when performing actual lamination, the sheets 7, 10, and 11 are separated in this manner between pressing member P1 and pressing member P2 (or supporting members S1 and S2 in Figure 2). Garabedian's Figures 1 and 2 merely illustrate the sheets 7, 10 and 11 floating between members P1/S1 and P2/S2 simply to facilitate the explanation. See also Col. 2, line 63 - Col.3, line 5 (indicating that Figures 1 and 2 are merely schematic drawings). These sheets are, in fact, positioned on top of one another in contact, to be placed directly on the diaphragm 5. Thus, contrary to the Examiner's assertion, Garabedian neither shows nor suggests the claimed supporting means and movable heating stage.

Moreover, contrary to the claimed invention, Garabedian fails to show an upper and an under chamber. Instead, it merely shows a unitary chamber located between platens 1 and 2

Thus Garabedian, by itself, neither anticipates nor render obvious the invention of claim 1. Additionally, because claim 5 depends from claim 1, that claim is likewise patentable over Garabedian.

Reconsideration of the rejection is respectfully requested.

B. Response to Paragraph 5

The Examiner rejected claim 2 under 35 U.S.C. § 103(a) as being unpatentable over Garabedian in view of Vogt.

As discussed above, claim 1, and its dependent claim 2, are patentable over Garabedian. Vogt, whether taken alone or in combination with Garabedian, fails to show or suggest the elements of claim 1 missing from Garabedian nor the additional limitation require by claim 2.

Vogt is direct to a conventional single chamber laminator which fails to disclose a claimed feature of the invention, a supporting means for supporting the laminate and a separate and movable heating stage. Instead, the device disclosed in Vogt uses its supporting webs 22a and 22b

to support not the material to be laminated, but, *inter alia*, a supporting plate, heating film, and a pressure plate. Col. 7, line 61 - Col. 8, line 7.

Moreover, Vogt fails to disclose the specific heating stage and supporting means as disclosed in amended claim 2. Amended claim 2 requires the heating stage to have at least one hole and the supporting means to be supporting rods placed through the hole and protruding from the hole when the heating stage is in its downward position. To the contrary, the supporting webs 22a and 22b disclose in Vogt do not protrude from the upper surface of the heating stage but support the heating stage. Accordingly, Garabedian, in view of Vogt, fails to render the claimed invention obvious.

Reconsideration of the rejection is respectfully requested.

C. *Response to Paragraph 6*

The Examiner rejected claim 3 under 35 U.S.C. § 103(a) as being unpatentable over Garabedian in view of Miyashita.

As discussed above, claim 1, and its dependent claim 3, are patentable over Garabedian. Miyashita, whether taken alone or in combination with Garabedian, fails to show or suggest the elements of claim 1 missing from Garabedian nor the additional limitation required by claim 3.

Miyashita is directed to a hot press. Like Garabedian, Miyashita does not disclose or suggest a supporting means which maintains the material above the heating stage when the heating stage is in its downward position. Because neither reference, either on its own or in combination with each other, show or suggest "a supporting means for supporting the materials in a position above and apart from the upper surface of the heating stage when the heating stage is located in the downwards position," claim 1, and dependent claim 3 are patentable.

Reconsideration of the rejection is respectfully requested.

D. Response to Paragraph 7

The Examiner rejected claims 6, 8 and 9 under 35 U.S.C. § 103(a) as being unpatentable over Garabedian in view of Hinterseer.

The invention claimed in claim 6 is directed to a two chamber laminating apparatus. The invention comprises a heating stage and a separate moving means. When the moving means is in its upward position, the moving means supports the materials above and apart from the heating stage. Additionally, the moving stage has a processing position where the materials are put on the upper surface of the heating stage. This novel and nonobvious invention provides several advantages. First, because the material to be laminated can be supported above the heating stage, the material is not brought into contact with the heating stage until the heating stage is at the proper temperature. This allows for a superior lamination. As discussed earlier in Section A, *supra*, this result cannot be achieved without a separate moving means and heating stage. Second, because the moving means can support the material to be laminated above the heating stage, the laminated material can be removed without cooling the heating stage. This allows for a reduction in costs because a cooled heating stage would have to be reheated prior to its reuse on a second material to be laminated.

The Garabedian patent fails to disclose these claimed features. The Examiner appears to be relying on Figures 1 and 2, which show the material to be laminated in a suspended position. However, in Garabedian Figures 1 and 2 there is no equivalent of the moving means according to the claimed invention. Specifically, Garabedian does not provide a moving means which can be moved into an upwards position in which the material to be laminated is "above and apart from the upper surface of the heating stage." Garabedian's Figures 1 and 2 show sheets 10 and 11 separated from each other as well as separated and at a distance above sheet 7. It is inconceivable that when

performing actual lamination, the sheets 7, 10, and 11 are separated in this manner between pressing member P1 and pressing member P2 (or supporting members S1 and S2 in Figure 2). Garabedian's Figures 1 and 2 merely illustrate the sheets 7, 10 and 11 floating between members P1/S1 and P2/S2 simply to facilitate the explanation. See also Col. 2, line 63 - Col. 3, line 5 (indicating that Figures 1 and 2 are merely schematic drawings). These sheets are, in fact, positioned on top of one another in contact, to be placed directly on the diaphragm 5. Thus, contrary to the Examiner's assertion, Garabedian neither shows nor suggests the claimed moving means and heating stage.

Moreover, contrary to the claimed invention, Garabedian fails to show an upper and an under chamber. Instead, it merely shows a unitary chamber located between platens 1 and 2

Thus Garabedian, by itself, neither anticipates nor render obvious the invention of claim 6.

Moreover, Hinterseer, when taken either alone or in combination, fails to show or suggest the claimed invention. The device disclosed in Hinterseer uses a movable pressure plate 16' to move a device to be welded. However, pressure plate 16' neither anticipates nor renders obvious the claimed moving means. Unlike the moving means claimed in claim 6--which requires the material to be laminated to be placed on the upper surface of the of the heating stage when the moving means is in a processing position--pressure plate 16' of Hinterseer prevents the material to be welded from ever being placed on the upper surface of heater rod 6 or even countertool 5.

Because neither Garabedian nor Hinterseer, whether taken alone or in combination, show or suggest the invention of claim 6, claim 6 is patentable. Moreover, because claim 9 depends from claim 6, it is likewise patentable.

Reconsideration of the rejection is respectfully requested.

E. Response to Paragraph 8

The Examiner rejected claim 7 as unpatentable over Garabedian in view of Hinterseer and Miyashita.

As discussed above, neither Garabedian nor Hinterseer, when taken alone or in combination, show or suggest the invention of claim 6. Moreover, for the same reasons as with regard to claim 5 in section E, *supra*, Miyashita, whether taken alone or in combination with Garabedian and Hinterseer show or suggest the invention of claim 6. Because claim 7 depends from claim 6, it is likewise patentable over those references.

F. Response to Paragraph 10

The Examiner rejected claims 1, 4-6 and 8-9 under 35 U.S.C. § 103(a) as being unpatentable over the admitted state of the prior art in view of Tourneux and in view of either Garabedian or Hinterseer.

As discussed above Garabedian neither shows nor suggest the claimed supporting means nor movable heating stage of claims 1 and 5. Moreover, as admitted by the Examiner, these features are also missing from the admitted prior art.

Similarly, the claimed supporting means and movable heating stage are missing from Hinterseer. In Hinterseer, as discussed above, the heating rods 6 and countertool 5 are stationary while the pressure plate 6' is movable. Thus the reference fails to disclose a movable heating stage. Moreover, because the pressure plate 6' is located between the material to be welded and both heating rods 6 and countertool 5, Hinterseer fails to show or suggest the claimed heating stage in which heating stage heats material placed on its surface. Thus Hinterseer fails to provide the claim elements missing from Garabedian or the admitted prior art.

Further, those missing claim elements are not disclosed in Tourneux. In fact, Tourneux teaches away from the claimed invention. The subassemblies to be laminated are kept separate until a vacuum is obtained and then the subassemblies are brought together. Pressure from load 72 may be used to assist the processing of joining the subassemblies. No heating is mentioned nor required. In fact, Tourneux teaches away from heating by suggesting the use of a adhesive which is activated at a temperature of not less more than 70° C. Thus, Tourneux fails to provide any heating stage, let alone a movable heating stage. Further Tourneux fails to disclose the claimed supporting means for supporting the material above a movable heating stage located in the downward position and a diaphragm. Thus, none of the reference, when taken alone or in combination show or suggest the invention of claim 1 or dependent claim 5.

Similarly, for the reasons discussed above in section D, neither Garabedian nor Hinterseer show or suggest the claimed invention. Moreover, as admitted by the Examiner, the admitted prior art neither shows nor suggests the claimed moving means.

Contrary to the Examiner's suggestion, Tourneux neither shows nor suggests the claimed "moving means for moving the materials between an upward position where the materials are supported above and apart from the upper surface of the heating stage and a processing position where the materials are put on the upper surface of the heating stage." Instead, in Tourneux supporting plates 67 and 68 are used to separate the two subassemblies which are to laminated until a vacuum has been created. This is vastly different from the claimed invention in which the moving means is used to move all of the materials to be laminated. Moreover, as discussed above, Tourneux neither shows or suggests the use of a heating stage. Thus, any moveable elements of Tourneux does not move the materials above and apart from a heating stage nor place them on the upper surface of

the heating stage. Thus, none of the reference, when taken alone or in combination show or suggest the invention of claim 6 or its dependent claim 9.

Reconsideration of the rejection is respectfully requested.

G. Response to Paragraph 11

The Examiner rejected claim 2 under 35 U.S.C. § 103(a) as being unpatentable over the state of the prior art in view of Tourneux, Garabedian and Vogt.

For the reasons discussed in sections B and F, *supra*, none of the references, when taken alone or in combination render the invention of claim 2 unpatentable.

Reconsideration of the rejection is respectfully requested.

H. Response to Paragraph 12

The Examiner rejected claims 3 and 7 under 35 U.S.C. § 103(a) as being unpatentable over the state of the prior art in view of Tourneux and Garabedian and/or Hinterseer and Miyashita.

For the reasons identified in sections C, E, and F, *supra*, none of the references, either alone or in combination, show or suggest the inventions of claims 3 and 7.

Reconsideration of the rejection is respectfully requested.

V. CONCLUSION

Applicants wish to thank the Examiner in advance for his time in considering this Amendment. If the Examiner believes that an interview would be helpful in resolving any issues, the Examiner is kindly requested to contact the undersigned attorney at (212)336-2451.

For the foregoing reasons, Applicants believe the present application is in condition for allowance and such action is respectfully requested.

Respectfully submitted,

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Scott B. Howard
Registration. No. 38,922

Mailing Address:

PATTERSON, BELKNAP, WEBB & TYLER LLP
1133 Avenue of the Americas
New York, NY 10036-6710
Telephone Number (212) 336-2000
Facsimile Number (212) 336-2222

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